



IFW

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Teck Kheng Lee

Serial No.: 10/829,603

Filed: April 22, 2004

For: METHODS FOR ASSEMBLY AND
PACKAGING OF FLIP CHIP
CONFIGURED DICE WITH INTERPOSER

Confirmation No.: 6862

Examiner: Unknown

Group Art Unit: 2823

Attorney Docket No.: 2269-4974.2US
(00-0693.02/US)

CERTIFICATE OF MAILING

I hereby certify that this correspondence along with any attachments referred to or identified as being attached or enclosed is being deposited with the United States Postal Service as First Class Mail on the date of deposit shown below with sufficient postage and in an envelope addressed to the Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

November 15, 2004
Date

Signature

Leah J. Barrow
Name (Type/Print)

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In compliance with the duty to disclose information material to patentability pursuant to 37 C.F.R. § 1.56, it is respectfully requested that this Supplemental Information Disclosure Statement be entered and the documents listed on attached Form PTO-1449 or PTO/SB/08 be considered by the Examiner and made of record. Copies of U.S. patents are not being submitted pursuant to M.P.E.P. 609 III A(2). Copies of foreign patent documents and non-patent literature are enclosed pursuant to 37 C.F.R. § 1.98(a)(2).

In accordance with 37 C.F.R. § 1.97(g) and (h), filing of this Supplemental Information Disclosure Statement is not to be construed as a representation that a search has been made or an admission that the information cited herein is, or is considered to be, material to patentability as defined in 37 C.F.R. § 1.56(b). Further, no representation is made by Applicant herein that no other possible material information as defined in 37 C.F.R. § 1.56 (b) exists.

U.S. Patent Documents

<u>U.S. Patent No.</u>	<u>Publication Date</u>	<u>Patentee</u>
US - 3,239,496	03/1966	Jursich
US - 4,074,342	02/1978	Honn et al.
US - 4,818,728	04/1989	Rai et al.
US - 5,148,265	09/1992	Khandros
US - 5,346,861	09/1994	Khandros
US - 5,404,044	04/1995	Booth et al.
US - 5,468,681	11/1995	Pasch
US - 5,489,804	02/1996	Pasch
US - 5,679,977	10/1997	Khandros
US - 5,683,942	11/1997	Kata
US - 5,742,100	04/1998	Schroeder et al.
US - 5,777,391	07/1998	Nakamura
US - 5,821,624	10/1998	Pasch
US - 5,905,303	05/1999	Kata
US - 6,022,761	02/2000	Gruppen-Shemansky et al.
US - 6,048,755	04/2000	Jiang et al.
US - 6,133,637	10/2000	Hikita et al.
US - 6,177,723	01/2001	Eng et al.
US - 6,217,343	04/2001	Okuno
US - 6,222,265	04/2001	Akram et al.

U.S. Patent Documents

US - 6,232,666	05/2001	Corisis et al.
US - 6,242,932	06/2001	Hembree
US - 6,265,775	07/2001	Seyyedy
US - 6,291,265	09/2001	Mess
US - 6,295,730	10/2001	Akram
US - 6,338,985	01/2002	Greenwood
US - 6,468,831	10/2002	Leong et al.
US - 6,482,676	11/2002	Tsunoi et al.
US - 6,489,676	12/2002	Taniguchi et al.
US - 6,515,324 B2	02/2003	Shibuya et al.
US - 6,586,830 B2	07/2003	Saito
US - 6,714,418	03/2004	Frankowsky et al.
US - 6,744,122	06/2004	Hashimoto
US - 6,756,251	06/2004	Lee
US - 6,791,195	09/2004	Urushima
US - 2002/0045611 A1	04/2002	Abrams et al.
US - 2002/0079594 A1	06/2002	Sakurai
US - 2002/0142513 A1	10/2002	Fee et al.
US - 2002/0185661 A1	12/2002	Kawanobe et al.
US - 2003/0134450 A1	07/2003	Lee

Foreign Patent Documents

<u>Document No.</u>	<u>Publication Date</u>	<u>Patentee</u>
EP 684644	11/1995	Kata et al.
EP 1009027	06/2000	Okuno
KR 2001054744	07/2001	Choi et al. (English Abstract)

Other Documents

- AL-SARAWI et al., A review of 3-D packaging technology, @ Components, Packaging, and Manufacturing Technology, Part B: IEEE Transactions on Advanced Packaging, Vol 21, Issue 1, Feb. 1998, pp. 2-14.
- ANDROS et al., ATBGA Package Technology, @ Components, Packaging, and Manufacturing Technology, Part B: IEEE Transactions on Advanced Packaging, Vol. 17, Issue 4, Nov. 1994, pp. 564-568.
- CLOT et al., A Flip-Chip on Flex for 3D Packaging, @ 1999. 24th IEEE/CPMT, 18-19 Oct. 1999, pp. 36-41.
- FERRANDO et al., A Industrial approach of a flip-chip method using the stud-bumps with a non-conductive paste, @ Adhesive Joining and Coating Technology in Electronics Manufacturing, 2000. Proceedings. 4th International Conference on, 18-21, June 2000, pp. 205-211.
- GALLAGHER et al., A Fully Additive, Polymeric Process for the Fabrication and Assembly of Substrate and Component Level Packaging, @ The First IEEE International Symposium on Polymeric Electronics Packaging, 26-30, Oct. 1997, pp. 56-63.
- GEISSINGER et al., A Tape Based CSP Package Supports Fine Pitch Wirebonding, @ Electronics Manufacturing Technology Symposium, 2002, IEMT 2002, 27th Annual IEEE/SEMI International, 17-18 July 2002, pp. 41-452.
- HATANAKA, H., A Packaging processes using flip chip bonder and future directions of technology development, @ Electronics Packaging Technology Conference, 2002. 4th, 10-12, Dec. 2002, pp. 434-439.
- HAUG et al., A Low-Cost Direct Chip Attach: Comparison of SMD Compatible FC Soldering with Anisotropically Conductive Adhesive FC Bonding, @ IEEE Transactions on Electronics Packaging Manufacturing, Vol. 23, No. 1, Jan 2000, pp. 12-18.
- KLOESER et al., A Fine Pitch Stencil Printing of Sn/Pb and Lead Free Solders for Flip Chip Technology, @ IEEE Transactions of CPMT - Part C, vol. 21, No. 1, 1998, pp. 41-49.
- LEE et al., A Enhancement of Moisture Sensitivity Performance of a FBGA, @ Proceedings of International Symposium on Electronic Materials & Packaging, 2000, pp. 470-475.

Other Documents

- LI et al., A Stencil Printing Process Development for Flip Chip Interconnect,@ IEEE Transactions Part C: Electronics Packaging Manufacturing, Vol. 23, Issue 3, (July 2000), pp. 165-170.
- LYONS et al., "A New Approach to Using Anisotropically Conductive Adhesives for Flip-Chip Assembly, Part A, " *IEEE Transactions on Components, Packaging, and Manufacturing Technology*, Vol. 19, Issue 1, March 1996, pp. 5-11.
- TEO et al., "Enhancing Moisture Resistance of PBGA," *Electronic Components and Technology Conference*, 1988. 48th IEEE, 25-28 May 1998, pp. 930-935.
- TEUTSCH et al, "Wafer Level CSP using Low Cost Electroless Redistribution Layer," *Electronic Components and Technology Conference*, 2000. 2000 Proceedings. 50th, 21-24 May 2000, pp. Pages: 107-113.
- "The 2003 International Technology Roadmap for Semiconductor: Assembly and Packaging."
- TSUI et al., "Pad redistribution technology for flip chip applications," *Electronic Components and Technology Conference*, 1998. 48th IEEE, 25-28 May 1998, pp. 1098-1102.
- XIAO et al., "Reliability study and failure analysis of fine pitch solder-bumped flip chip on low-cost flexible substrate without using stiffener," IEEE, 2002. Proceedings 52nd, 28-31 May 2002, pp. 112-118.

Applicant offers to supply any explanation or discussion of the documents which the Examiner feels is necessary or desirable and which is requested.

Serial No. 10/829,603

This Supplemental Information Disclosure Statement is filed before the mailing date of a first Office Action on the merits.

Respectfully submitted,

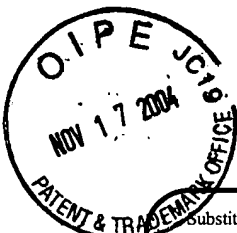
A handwritten signature in black ink, appearing to read 'Trent Butcher', with a long horizontal flourish extending to the right.

Trent N. Butcher
Registration No. 51,518
Attorney for Applicant(s)
TRASKBRITT
P.O. Box 2550
Salt Lake City, Utah 84110-2550
Telephone: 801-532-1922

Date: November 15, 2004
TNB/lmh:ljb

Enclosures: Form PTO-1449 or PTO/SB/08
Copy of non-US documents cited

Document in ProLaw



Substitute for form 1449A/PTO

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**

(use as many sheets as necessary)

Sheet 1 of 4

Complete if Known

Application Number	10/829,603
Filing Date	April 22, 2004
First Named Inventor	Teck Kheng Lee
Group Art Unit	2823
Examiner Name	Unknown
Attorney Docket Number	2269-4974.2US (00-0693.02/US)

U.S. PATENT DOCUMENTS

Examiner Initials *	Cite No. ¹	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number - Kind Code ² (if known)			
		US-3,239,496	03/1966	Jursich	
		US- 4,074,342	02/1978	Honn et al.	
		US- 4,818,728	04/1989	Rai et al.	
		US- 5,148,265	09/1992	Khandros	
		US- 5,346,861	09/1994	Khandros	
		US- 5,404,044	04/1995	Booth et al.	
		US- 5,468,681	11/1995	Pasch	
		US- 5,489,804	02/1996	Pasch	
		US- 5,679,977	10/1997	Khandros	
		US- 5,683,942	11/1997	Kata	
		US - 5,742,100	04/1998	Schroeder et al.	
		US - 5,777,391	07/1998	Nakamura	
		US - 5,821,624	10/1998	Pasch	
		US - 5,905,303	05/1999	Kata	
		US - 6,022,761	02/2000	Gruppen-Shemansky et al.	
		US - 6,048,755	04/2000	Jiang et al.	
		US - 6,133,637	10/2000	Hikita et al.	
		US - 6,177,723	01/2001	Eng et al.	
		US - 6,217,343	04/2001	Okuno	
		US - 6,222,265	04/2001	Akram et al.	

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No. ¹	Foreign Patent Document	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T ⁶
		Country Code ³ - Number ⁴ - Kind Code ⁵ (if known)				
		EP 684644	11/1995	Kata et al.		
		EP 1009027	06/2000	Okuno		
		KR 2001054744	07/2001	Choi et al. (English Abstract)		x

Examiner
SignatureDate
Considered

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ Applicant's unique citation designation number (optional). ² See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. ⁶ Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

Substitute for form 1449A/PTO

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**

(use as many sheets as necessary)

Sheet 2 of 4

Complete if Known

Application Number	10/829,603
Filing Date	April 22, 2004
First Named Inventor	Teck Kheng Lee
Group Art Unit	2823
Examiner Name	Unknown
Attorney Docket Number	2269-4974.2US (00-0693.02/US)

U.S. PATENT DOCUMENTS

Examiner Initials *	Cite No. ¹	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number - Kind Code ² (if known)			
		US - 6,232,666	05/2001	Corisis et al.	
		US - 6,242,932	06/2001	Hembree	
		US - 6,265,775	07/2001	Seyyedy	
		US - 6,291,265	09/2001	Mess	
		US - 6,295,730	10/2001	Akram	
		US - 6,338,985	01/2002	Greenwood	
		US - 6,468,831	10/2002	Leong et al.	
		US - 6,482,676	11/2002	Tsunoi et al.	
		US - 6,489,676	12/2002	Taniguchi et al.	
		US - 6,515,324 B2	02/2003	Shibuya et al.	
		US - 6,586,830 B2	07/2003	Saito	
		US - 6,714,418	03/2004	Frankowsky et al.	
		US - 6,744,122	06/2004	Hashimoto	
		US - 6,756,251	06/2004	Lee	
		US - 6,791,195	09/2004	Urushima	
		US - 2002/0045611 A1	04/2002	Abrams et al.	
		US - 2002/0079594 A1	06/2002	Sakurai	
		US - 2002/0142513 A1	10/2002	Fee et al.	
		US - 2002/0185661 A1	12/2002	Kawanobe et al.	
		US - 2003/0134450 A1	07/2003	Lee	

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No. ¹	Foreign Patent Document	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T ⁶
		Country Code ³ - Number ⁴ - Kind Code ⁵ (if known)				

Examiner
SignatureDate
Considered

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ Applicant's unique citation designation number (optional). ² See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. ⁶ Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

Substitute for form 1449A/PTO		Complete if Known	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary)		Application Number	10/829,603
		Filing Date	April 22, 2004
		First Named Inventor	Teck Kheng Lee
		Group Art Unit	2823
		Examiner Name	Unknown
Sheet 3 of 4	Attorney Docket Number	2269-4974 2US (00-0693 02/US)	

NON PATENT LITERATURE DOCUMENTS			
Examiner Initials *	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
		AL-SARAWI et al., AA review of 3-D packaging technology,@ Components, Packaging, and Manufacturing Technology, Part B: IEEE Transactions on Advanced Packaging, Vol 21, Issue 1, Feb. 1998, pp. 2-14.	
		ANDROS et al., ATBGA Package Technology,@ Components, Packaging, and Manufacturing Technology, Part B: IEEE Transactions on Advanced Packaging, Vol. 17, Issue 4, Nov. 1994, pp. 564-568.	
		CLOT et al., A Flip-Chip on Flex for 3D Packaging,@ 1999. 24th IEEE/CPMT, 18-19 Oct. 1999, pp. 36-41.	
		FERRANDO et al., A Industrial approach of a flip-chip method using the stud-bumps with a non-conductive paste,@ Adhesive Joining and Coating Technology in Electronics Manufacturing, 2000. Proceedings. 4th International Conference on, 18-21, June 2000, pp. 205-211.	
		GALLAGHER et al., A A Fully Additive, Polymeric Process for the Fabrication and Assembly of Substrate and Component Level Packaging,@ The First IEEE International Symposium on Polymeric Electronics Packaging, 26-30, Oct. 1997, pp. 56-63.	
		GEISSINGER et al., A Tape Based CSP Package Supports Fine Pitch Wirebonding,@ Electronics Manufacturing Technology Symposium, 2002, IEMT 2002, 27th Annual IEEE/SEMI International, 17-18 July 2002, pp. 41-452.	
		HATANAKA, H., A Packaging processes using flip chip bonder and future directions of technology development,@ Electronics Packaging Technology Conference, 2002. 4th, 10-12, Dec. 2002, pp. 434-439.	
		HAUG et al., A Low-Cost Direct Chip Attach: Comparison of SMD Compatible FC Soldering with Anisotropically Conductive Adhesive FC Bonding,@ IEEE Transactions on Electronics Packaging Manufacturing, Vol. 23, No. 1, Jan 2000, pp. 12-18.	
		KLOESER et al., A Fine Pitch Stencil Printing of Sn/Pb and Lead Free Solders for Flip Chip Technology,@ IEEE Transactions of CPMT - Part C, vol. 21, No. 1, 1998, pp. 41-49.	
		LEE et al., A Enhancement of Moisture Sensitivity Performance of a FBGA,@ Proceedings of International Symposium on Electronic Materials & Packaging, 2000, pp. 470-475.	
		LI et al., A Stencil Printing Process Development for Flip Chip Interconnect,@ IEEE Transactions Part C: Electronics Packaging Manufacturing, Vol. 23, Issue 3, (July 2000), pp. 165-170.	

Examiner Signature		Date Considered	
--------------------	--	-----------------	--

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ Unique citation designation number (optional). ² Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

Substitute for form 1449A/PTO

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**

(use as many sheets as necessary)

Sheet

4

of

4

Complete if Known

Application Number	10/829,603
Filing Date	April 22, 2004
First Named Inventor	Teck Kheng Lee
Group Art Unit	2823
Examiner Name	Unknown
Attorney Docket Number	2269-4974 211S (00-0693 02/11S)

NON PATENT LITERATURE DOCUMENTS

Examiner Initials *	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
		LYONS et al., "A New Approach to Using Anisotropically Conductive Adhesives for Flip-Chip Assembly, Part A," <i>IEEE Transactions on Components, Packaging, and Manufacturing Technology</i> , Vol. 19, Issue 1, March 1996, pp. 5-11.	
		TEO et al., "Enhancing Moisture Resistance of PBGA," <i>Electronic Components and Technology Conference</i> , 1998. 48 th IEEE, 25-28 May 1998, pp. 930-935.	
		TEUTSCH et al., "Wafer Level CSP using Low Cost Electroless Redistribution Layer," <i>Electronic Components and Technology Conference</i> , 2000. 2000 Proceedings. 50 th , 21-24 May 2000, pp. Pages: 107-113.	
		"The 2003 International Technology Roadmap for Semiconductor: Assembly and Packaging."	
		TSUI et al., "Pad redistribution technology for flip chip applications," <i>Electronic Components and Technology Conference</i> , 1998. 48 th IEEE, 25-28 May 1998, pp. 1098-1102.	
		XIAO et al., "Reliability study and failure analysis of fine pitch solder-bumped flip chip on low-cost flexible substrate without using stiffener," <i>IEEE</i> , 2002. Proceedings 52 nd , 28-31 May 2002, pp. 112-118.	

Examiner
SignatureDate
Considered

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ Unique citation designation number (optional). ² Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.